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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : <b>C12N 15/12, C07K 14/715, C12N 5/10, G01N 33/68, C07K 16/28, C12N 15/11</b>		<b>A3</b>	(11) International Publication Number: <b>WO 97/41225</b>
			(43) International Publication Date: 6 November 1997 (06.11.97)
(21) International Application Number: <b>PCT/US97/06993</b>		(74) Agent: BILLINGS, Lucy, J.; Incyte Pharmaceuticals, Inc., 3174 Porter Drive, Palo Alto, CA 94304 (US).	
(22) International Filing Date: 25 April 1997 (25.04.97)		(81) Designated States: AT, AU, BR, CA, CH, CN, DE, DK, ES, FI, GB, IL, JP, KR, MX, NO, NZ, RU, SE, SG, US, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
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(60) Parent Application or Grant (63) Related by Continuation US 08/638,081 (CIP) Filed on 26 April 1996 (26.04.96)		(88) Date of publication of the international search report: 23 April 1998 (23.04.98)	
(71) Applicant (for all designated States except US): INCYTE PHARMACEUTICALS, INC. [US/US]; 3174 Porter Drive, Palo Alto, CA 94304 (US).			
(72) Inventors; and (75) Inventors/Applicants (for US only): AU-YOUNG, Janice [US/US]; 1419 Kains Avenue, Berkeley, CA 94702 (US). BANDMAN, Olga [US/US]; 366 Anna Avenue, Mountain View, CA 94043 (US). COLEMAN, Roger [US/US]; 260 Mariposa #2, Mountain View, CA 94041 (US). WILDE, Craig, G. [US/US]; 1239 Mandarin Drive, Sunnyvale, CA 94087 (US).			
(54) Title: MAMMALIAN MIXED LYMPHOCYTE RECEPTORS, CHEMOKINE RECEPTORS (MMLR-CCR)			
(57) Abstract <p>The present invention provides polynucleotides (mmlr-ccr or mphg-ccr) which encode novel chemokine receptors (MMLR-CCR or MPHG-CCR). The present invention provides for screening methods for the detection of molecules that modulate receptor activity. The present invention also provides for antisense molecules, diagnostic molecules, genetically engineered expression vectors and host cells for the production of purified MMLR-CCR or MPHG-CCR; antibodies, agonists, antagonists and inhibitors of MMLR-CCR or MPHG-CCR; and pharmaceutical compositions and methods of treatment based on the polypeptide, its antibodies, antagonists and inhibitors. The invention further provides diagnostic and therapeutic compositions for the detection and treatment of infection, inflammation, proliferative disease, solid tumors and cardiovascular disease.</p>			

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 97/06993

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 C12N15/12 C07K14/715 C12N5/10 G01N33/68 C07K16/28  
C12N15/11

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BORING L ET AL: "Molecular cloning and functional expression of murine JE (monocyte chemoattractant protein 1) and murine macrophage inflammatory protein 1alpha receptors: evidence for two closely linked C-C chemokine receptors on chromosome 9." J BIOL CHEM, MAR 29 1996, 271 (13) P7551-8, UNITED STATES, XP002043124 see the whole document	4  1-3,5-15
A	---	4
X	WO 95 19436 A (UNIV CALIFORNIA ;CHARO ISRAEL (US); COUGHLIN SHAUN (US)) 20 July 1995 see the whole document	1-3,5-15
A	---	
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- \* "E" earlier document but published on or after the international filing date
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Date of the actual completion of the international search

14 October 1997

Date of mailing of the international search report

18.02.98

Name and mailing address of the ISA  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
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Authorized officer

Nauche, S

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 97/06993

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CHARO, I.F. ET AL.: "Molecular cloning and functional expression of two monocyte chemoattractant protein 1 receptors reveals alternative splicing of the carboxyl-terminal tails" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA., vol. 91, 1994, WASHINGTON US, pages 2752-2756, XP002043550 cited in the application see the whole document ---	1-15
P,X	WO 96 39437 A (HUMAN GENOME SCIENCES INC ;LI YI (US); RUBEN STEVEN M (US)) 12 December 1996 see claims 1-20 ---	1-15
E	WO 97 32019 A (EUROSCREEN S A ;SAMSON MICHEL (FR); PARMENTIER MARC (BE); VASSART) 4 September 1997 see claims 7-89 ---	1-15
E	WO 97 22698 A (ICOS CORP) 26 June 1997 see claims 16-29 -----	1-15

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 97/06993

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
Remark: Although claim(s) 14 (may be) and claim 15  
is(are) directed to a method of treatment of the human/animal  
body, the search has been carried out and based on the alleged  
effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such  
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Subject 1) Claims 1-15  
Subject 2) Claims 16-28

For further information see continuation sheet PCT/ISA/210

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all  
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment  
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report  
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is  
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-15

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-15

A MMLR-CCR chemokine receptor , polynucleotide encoding said receptor. Antisense molecule derived from the MMLR-CCR chemokine receptor. Expression vector and recombinant host cells for the production of MMLR-CCR chemokine receptor. Antibodies immunoreactive with MMLR-CCR chemokine receptor. Uses in diagnostics and pharmaceuticals.

2. Claims: 16-28

A MPHG-CCR chemokine receptor , polynucleotide encoding said receptor. Antisense molecule derived from the MPHG-CCR chemokine receptor. Expression vector and recombinant host cells for the production of MPHG-CCR chemokine receptor. Antibodies immunoreactive with MPHG-CCR chemokine receptor. Uses in diagnostics and pharmaceuticals.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/06993

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9519436 A	20-07-95	AU 1679395 A EP 0740701 A JP 9508264 T US 5707815 A	01-08-95 06-11-96 26-08-97 13-01-98
WO 9639437 A	12-12-96	AU 2663295 A EP 0815137 A	24-12-96 07-01-98
WO 9732019 A	04-09-97	NONE	
WO 9722698 A	26-06-97	AU 1689297 A CA 2213331 A EP 0811063 A NO 973800 A	14-07-97 26-06-97 10-12-97 20-10-97